**BIO-COM**

**QUARTERLY 3**

**STUDY GUIDE**



1. This type of RNA transfers the amino acids to the growing protein chain.

2. This type of RNA carries the message from DNA for the making of proteins.

3. The set of 3 consecutive nitrogen bases found on the mRNA is the \_\_\_\_\_.

4. The enzyme that binds to DNA during transcription is \_\_\_\_\_.

5. \_\_\_\_ is the process where a piece of DNA is copied into mRNA.

6. The process where the mRNA is “decoded” into protein is called \_\_\_\_.

7. Translation takes place in the \_\_\_\_ of a cell.

8. When one part of a chromosome is left out, this is called a \_\_\_.

9. When part of a chromosome breaks off and is reattached backwards this is a \_\_\_ mutation.

10. Any mistake or change in DNA is a \_\_\_\_\_.

11. When a piece of a chromosome breaks off during crossing over and attaches to a non-homologous chromosome this is a(n) \_\_\_\_\_.

12. Gregor Mendel used pea plants to study \_\_\_\_.

13. Mendel called the “factors” that determine traits \_\_\_\_\_.

14. Mendel’s principle of dominance states that \_\_\_\_.

15. A tall plant is crossed with a short plant, all the offspring in the F1 generation will be \_\_\_\_.

16. When you flip a coin, what is the probability that it will come up tails?

17. In the P generation, a tall plant is crossed with a short plant. The probability that an F1 plant will be tall is \_\_\_.

18. When one allele for a gene is not completely dominant over another allele this is called \_\_\_\_\_.

19. Human skin color is a result of \_\_\_\_\_\_.

20. What principle states that during gamete formation genes for different traits separate independently of each other?

21. A cross of a black chicken (*BB*) with a white chicken (*WW*) produces all checkered offspring (*BW*). This type of inheritance is known as \_\_\_\_.

22. \_\_\_ is the Father of Genetics

23. Human A, B, O blood type is an example of \_\_\_\_.

**Use Fig. 11-1 below to answer question 24.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  | | ***Tt*** | |
|  |  | ***T*** | | ***t*** |
| ***TT*** | ***T*** | ***TT*** | | ***Tt*** |
| ***T*** | ***TT*** | | ***Tt*** |

|  |  |  |
| --- | --- | --- |
| ***T*** | ***=*** | ***tall*** |
| ***t*** | ***=*** | ***short*** |

**Figure 11-1**

24. In the Punnett square shown in Figure 11-1, which of the following is true about the offspring resulting from the cross?

25. If an organism’s genotype is represented by one upper case letter and one lower case letter, it is said to be \_\_\_.

26. The longest phase of the **cell cycle** is \_\_\_\_.

27. The Watson and Crick model of DNA is a(an) \_\_\_\_\_, in which two strands are wound around each other.

28. During DNA replication, what must be “unzipped”?

29. During what phase of mitosis does the nuclear envelope disappear?

30. What molecule does the “unzipping” during DNA replication?

31. The part of the experiment in which all conditions are kept the same (do not vary) are called

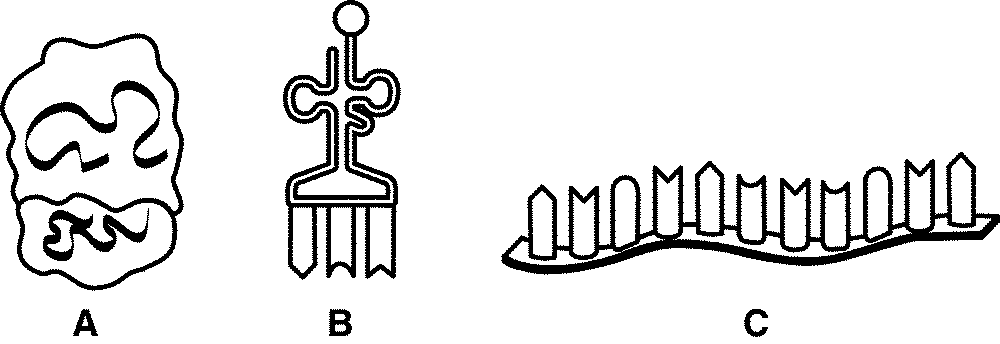
32. Identify the correct order of steps in the scientific method listed below.

33. The regulation of an organism’s internal environment to maintain conditions suitable for life is the definition of \_\_\_\_.

34. The process by which molecules move from an area of **higher** concentration **to** an area of **lower** concentration is the definition of \_\_\_.

35. Photosynthesis takes place in the \_\_\_\_.

**Use Figure 12-3 to answer question 36-40 below.**



**Figure 12-3**

36. What type of RNA is molecule B in Figure 12-3?

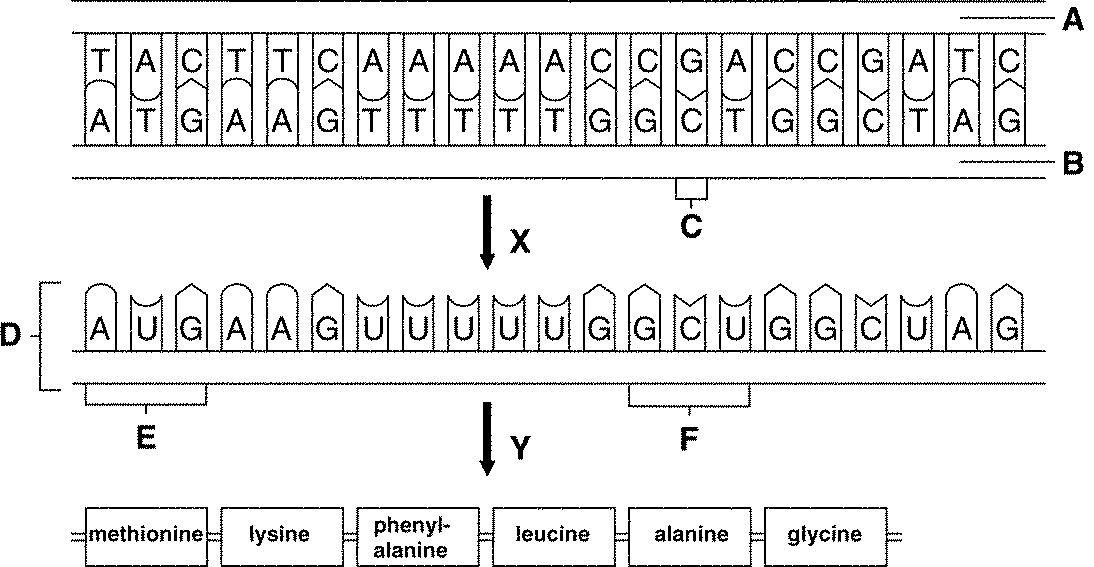
37. What is type of RNA is molecule C in Figure 12-3?

38. Which molecule above is responsible for carrying the code from DNA?

39. What molecule above is responsible for bringing the amino acid to the growing protein?

40. What type of RNA is molecule A in Figure 12-3?

***Use Figure 12-4 below to answer the questions 41 -45***



**FIGURE 12-4**

41. What is structure A&B in Figure 12–4?

42. What structure F in Figure 12–4?

43. What is structure E in Figure 12–4?

44. What would happen to structure F in Figure 12–4 if structure C were deleted?

45. What process does structure X represent in Figure 12-4?

**Use Figure 11-4 below to answer questions 46 - 50**

Heterozygous male guinea pigs with black, rough hair (*BbRr*) are crossed with heterozygous female guinea pigs with black, rough hair (*BbRr*). The incomplete Punnett square in Figure 11-4 shows the expected results from the cross.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| ***BbRr*** | | | | | | |
|  |  | ***BR*** | ***Br*** | ***bR*** | ***br*** |  |
|  | ***BR*** | ***BBRR*** | ***BBRr*** | ***BbRR*** | ***BbRr*** | **Hair Color**  ***B =* Black**  ***b =* White** |
| ***BbRr*** | ***Br*** | ***BBRr*** | ***BBrr*** | ***BbRr*** | ***Bbrr*** | **Hair Texture**  ***R =* Rough**  ***r =* Smooth** |
| ***bR*** | ***BbRR*** | ***BbRr*** | **?** | ***bbRr*** |
|  | ***br*** | ***BbRr*** | ***Bbrr*** | ***bbRr*** | ***bbrr*** |  |

**Figure 11–4**

46. Identify the genotype of the offspring that would be represented by the question mark in Figure 11–4.

47. Identify the phenotype of the offspring represented by the question mark in Figure 11–4?

48. What fraction of the offspring in Figure 11–4 would be expected to have white, smooth hair?

49. In Figure 11–4, what is the phenotypic ratio of the offspring?

50. In Figure 11-4, what is the genotype of the offspring that have white, smooth hair?